Remarks

The Office Action notes that claims 1-24 are pending in the application. Of these, claims 6-11 and 21-24 have been withdrawn subject to an earlier restriction requirement. Claims 1-5 and 12-20 remain under consideration. Applicants hereby amend claim 1 to remove "characterizing" language in accordance with United States practice. Therefore, no new matter has been added.

Independent claims 1 and 12 stand rejected under 35 USC § 103(a) as being unpatentable over US Patent Publication 2003/0044031 to Son ("Son"). The Applicants respectfully traverse the rejection and request reconsideration.

In formulating the rejection of claim 1, the Office Action acknowledges that Son does not disclose "a resonant oscillation that includes a center frequency that is located between a first note on a musical scale, and a second note on the musical scale that is directly adjacent to the first note on the musical scale." (Office Action, page 3, lines 1-2.) The Office Action rationalizes, however, that it would have been obvious to one of skill in the art to provide Son with "a suitable musical signal as a song with a pair of adjacent notes…to provide a more desirable phone to the users." (Id. at lines 5-7.) The Applicants respectfully submit that the Examiner has overlooked portions of the claimed subject matter.

Referring to Fig. 1, of Son discloses the use of two distinct voice coils to provide the audio and vibratory functions. A first coil (2) provides audio by driving a loudspeaker diaphragm via input leads 14 and 15. A second coil (9) provides vibration and is driven by input leads 16 and 17. This two coil design prevents inadvertent activation of vibration by audio signals and reduces audio distortion when the vibratory function is active.

The subject matter of the present application, however, utilizes a single to provide both voice and vibratory function. Distortion is avoided through specification of a resonant system so that prevents activation of a vibratory function through music signals. By centering the vibration resonant frequency between two musical notes (Claim 1) and narrowing the vibration performance to its frequency response (Claims 2-3), virtually any combination of notes can be played without inadvertently activating a vibratory function. If one of the notes that lie on either side of the vibration frequency happen to be used, the maximum vibration generated is far below the maximum that the system is capable of producing and does not lead to distortion in the audio, or overdrive of the mechanical vibration system. When full vibration is desired, the device is driven at the center frequency, which is never used as part of the western musical scale, thus achieving full vibration. This allows the user of the cell phone to download ring tones from many sources without the danger of improper phone operation, while allowing full vibration when needed, all with a single input and voice coil.

The Office Action never addresses the limitations of claims 1-3 that relate to the above described resonant system. Rather, the Office Action merely states that it would be obvious to provide the device of Son with a musical signal. The Applicants, however, are not merely claiming a musical signal. Instead the Applicants are claiming a device with physical characteristics that determine a resonant oscillation including "a center frequency that is located between a first note on a musical scale, and a second note on the musical scale that is directly adjacent to the first note on the musical scale." The Office Action is silent with respect to this limitation and the Applicants respectfully submit that

the two coil design of Son establishes that Son does not disclose this limitation. Accordingly, the rejection of claim 1 should be withdrawn.

The rejection of independent claim 12 should be withdrawn for the same reasons as claim 1. The remaining claims are dependent, either directly or indirectly, on claims 1 and 12 and should be withdrawn for the same reasons.

In view of the aforesaid, the present application is in condition for allowance. Favorable reconsideration is requested.

Respectfully Submitted

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